

## MEMORANDUM

DATE: June 19, 2020

TO: Ken Marcy, Task Monitor, EPA, Portland, OR

THRU: Linda Ader, START-IV Team Leader, E & E, Seattle, WA *LA*

FROM: Jeff Fetters, START-IV Project Manager, E & E, Seattle, WA

SUBJECT: Proposed Sampling and Analytical Strategy  
GVD Property  
Coeur d'Alene

REF: Contract Number EP-S7-13-07  
Task Order, Subtask Number: TO-027-010

This memorandum is for a proposed sampling and assessment approach for a Site Inspection (SI) at the GVD Property site, which is located in Coeur d'Alene, Idaho (Figure 1). This memorandum, while outlining the proposed field investigation strategy, is not intended to be a comprehensive field sampling and analytical work plan. The work plan document will be prepared later once parties involved with the project have had an opportunity to review and comment on the proposed sampling approach.

### **Site Description and Background:**

The GVD Property site is located within the Coeur d'Alene City limits on the north side of Interstate 90 (I-90). The site is part of the Moen subdivision, and consists of five separate parcels, Kootenai County parcel numbers C-6180-002-001-0, C-0000-002-6375, C-6180-002-002-A, C-6180-002-003-A, and C-6180-002-004-A (Kootenai County 2020) (Figure 2). The site is bound by West Appleway Avenue to the north and northeast, Ramsey Road to the west, West Lee Court to the south, beyond which is I-90. The site is currently zoned commercial and is partially developed with one mixed-use building occupied by Firehouse Subs and Thomas Hammer Coffee Company in the northeast corner of the site, and another building in the southwest corner of the site that is currently occupied by a Cracker Barrel restaurant. A smaller, vacant building and a paved parking area are in the southeast corner of the site; the remainder of the site consists of open areas with bare soil and sparse vegetation.

The site was purchased by Ronald Moen in 1971, ownership prior to this time is not known. In 2001, Ronald Moen and three partners in D.D.T. Investments created the Moen subdivision, consisting of the five parcels listed above located at the corner of West Appleway Avenue and Ramsey Road. Between January 2007 and January 2009 GVD Partners LP purchased portions of the Moen subdivision, and currently owns four of the five parcels (IDEQ 2018). D.D.T

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Investments is currently still listed as the property owner for parcel C-6180-002-001-0 (Kootenai County 2020).

The site was undeveloped, vacant land until gravel mining activities began in the early 1950s. Coeur d'Alene Ready Mix is listed in the 1969 Polk's City Directory is presumably related in some way to gravel mining operations and concrete manufacturing given the company's name. By 1971, gravel mining operations had expanded, covering much of the site and surrounding area to the north (Figure 3). It is at this time that Ronald Moen purchased the site and operated Moen Concrete from about 1977 to 1983. Available aerial photos suggest that gravel mining activities continued until at least 1981 but given that Moen Concrete operated at the site until 1983, gravel mining activities may have continued until at least this time. Figure 3 shows the approximate extent of the gravel pit. The next available aerial photograph, from 1992, shows the gravel pit had been filled to grade (IDEQ 2018; Allwest 2016).

From aerial photographs from 1971 and 1975, it appears the vacant building located in the southeast portion of the site was constructed sometime before or in 1971, with an addition to the original building being constructed sometime before or in 1975. A second building was constructed in the southwest portion of the site, also sometime before or in 1971, though was removed sometime between 2013 and 2015 to make way for the Cracker Barrel restaurant that was constructed in 2016. Construction of the mixed-use building in the northeast corner of the site began in 2017.

Previous investigations have shown that the former gravel pit was backfilled, to some extent, with city and municipal waste in the 1950's and 1960's. These investigations suggest that city and municipal waste was directed to the former gravel pit when the local landfill was inaccessible due to flooding (Allwest 2016). Photographs of the waste excavated at the site 2008 or 2009 show general debris, along with large tires, as well as possible wood, metal, and broken concrete/asphalt. Bottles and newspapers from the 1950s were also observed (IDEQ 2012). Along with municipal waste, anecdotal information suggests that hazardous waste from the Pacemaker Industries, located in Spokane, Washington was buried at the site by Robert Moen after Pacemaker Industries went out of business in 1991. Pacemaker formerly manufactured road/highway signs and was the subject of several investigations from 1988 through late 1990 by the Washington State Department of Ecology (Ecology) related to improper waste handling, storage, and disposal, as well as reports of burying drums of waste at their Spokane, Washington location (EPA 2004).

### **Environmental Setting:**

The site is at approximately 2,230 feet above mean sea level and is generally flat, sloping gently to the northwest. Surface water runoff at the site is directed into shallow catch basins that infiltrate into the ground. The Spokane River is located approximately 0.6 miles southwest from the site.

The site is situated near the southern edge of the Spokane Valley-Rathdrum Prairie (SVRP) aquifer. The SVRP aquifer is a Sole Source Aquifer, as designated by United States

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Environmental Protection Agency (EPA) in 1978, that underlies approximately 370 square miles of land, extending from Lake Pend Oreille in Idaho through the Rathdrum Prairie and Spokane Valley to north of Spokane, Washington. The SVRP aquifer is the sole source of drinking water for more than 500,000 residents in Spokane County, Washington, and Bonner and Kootenai Counties, Idaho and consists primarily of thick layers of unconfined, unconsolidated coarse-grained sediments — gravels, cobbles, boulders, and sands — deposited during repeated Glacial Lake Missoula outburst floods. The material deposited in this high-energy depositional environment is coarser grained than is typical for most basin fill deposits, forming one of the most productive aquifers in the United States. However, well logs do suggest that fine-grained deposits are scattered throughout the SVRP aquifer, though their extent is difficult to map due to their discontinuity, and variable altitudes and thickness. Where present, the fine-grained deposits have the potential to act locally as aquitards (USGS 2007a; USGS 2007b; E&E 1996; E&E 1995).

Borings drilled and test pits excavated at the site suggest that fill material and/or waste extents from ground surface to depths ranging from approximately 20.5 feet below ground surface (bgs) to 38 feet bgs. A boring log for a temporary groundwater monitoring well installed at the site in 2018 to a depth of 182 feet bgs indicates that the subsurface consists predominantly of sands and gravels below the waste material, though a few intervals with higher interstitial silt were observed below approximately 123 feet bgs. Due to only one monitoring well being drilled at the site and the limited number of nearby wells, it is not known if the intervals with higher silt content are laterally continuous throughout the site, providing some form of vertical separation between the waste at the site and the SVRP aquifer. Groundwater was observed in this monitoring well at 168 feet bgs (MFA 2018a).

In general, groundwater in the SVRP aquifer flows from the northeast portion of the aquifer, near Lake Pend Oreille in Idaho, southwest toward Spokane, Washington. Near the site, groundwater measurements indicate that groundwater flow is to the north/northwest (E&E 1996; E&E 1995).

### **Previous Investigations:**

Several investigations have occurred at the site, though reports for some of these investigations are not available.

### **July 1998 Phase II Environmental Site Assessment**

In July 1998, Cascade Earth Sciences, Ltd completed a Phase II Environmental Site Assessment (ESA) on behalf of the Idaho Transportation Department for the planned realignment of Appleway Avenue. Though a copy of this report is not available, it is briefly discussed in site-related documents. The Phase II ESA indicates that the former gravel pit was reportedly used as a landfill for municipal waste when the Blackwell Island landfill was inaccessible due to flooding in the 1950's and 1960's, and includes an interview with an Idaho Department of Transportation employee who recalled that the "City" (presumably Coeur d'Alene) disposed of municipal waste in the gravel pit in when the City's landfill at Blackwell Island occasionally flooded. As part of the Phase II ESA, test pits were excavated near the original proposed Appleway Avenue realignment area, which encountered a variety of municipal waste resulting in

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the realignment route being shifted north to its current location to avoid the underlying waste material (Allwest 2016).

The locations of the test pits are not known, nor is it known if environmental samples were collected.

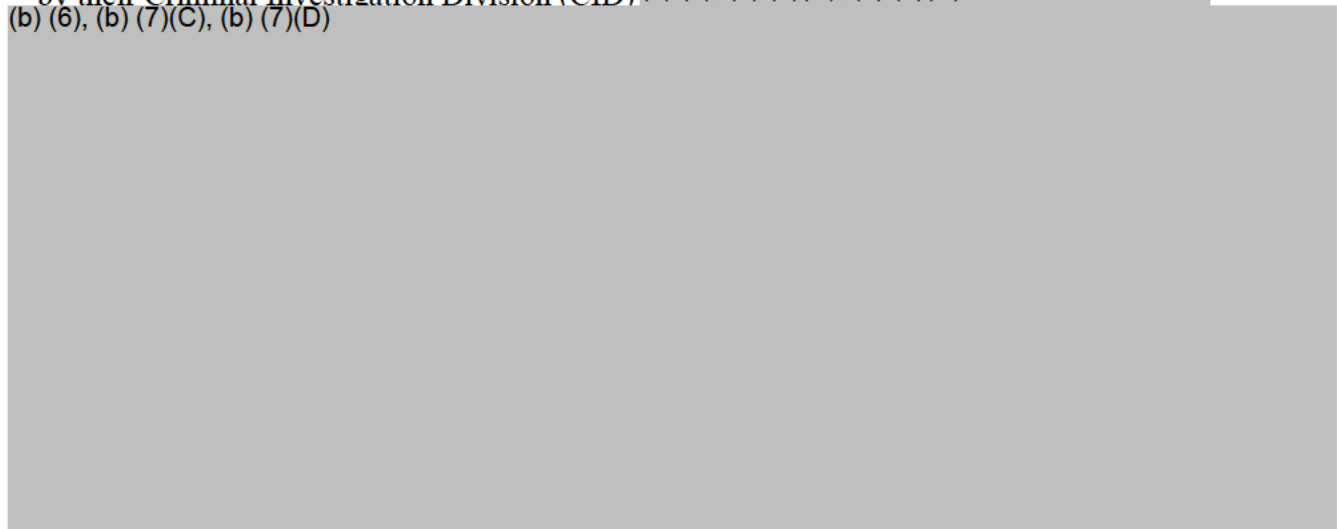
#### **June 2003 Geotechnical Engineering Evaluation**

In June 2003, Allwest Testing & Engineering (Allwest) completed a geotechnical engineering evaluation at the site to evaluate and characterize subsurface soil conditions or future commercial development. As part of their evaluation, five soil borings (TB-1 through TB-5) were drilled within the proposed development area (Figure 4).

Borings were drilled to depths ranging from 21 to 41 feet bgs. Fill and debris were encountered at the surface in each of the test borings to depths ranging from 20.5 to 38 feet bgs. The fill was described as loose, moist, medium to dark brown silty sand with organics and contained household debris. Native alluvium was encountered below the fill and consisted of medium brown to tan-gray, loose to medium dense, moist silty sand. Groundwater was not encountered in any of the borings. One sample of native soil was collected from three of the borings TB-2 (40 to 41.5 feet bgs), TB-3 (25 to 26.5 feet bgs), and TB-5 (20 to 21.5 feet bgs). Each sample was analyzed for leachable metals by toxicity characteristic leaching procedure (TCLP), polychlorinated biphenyls (PCBs), and volatile organic compounds (VOCs). Analytical results indicated that barium was detected at leachable concentrations in each of the three samples at concentrations ranging from 0.63 to 1.15 milligrams per liter. Toluene and m+p-xylene were detected at 0.008 milligrams per kilogram (mg/kg) and 0.007 mg/kg respectively in the sample collected from boring TB-2. PCBs were not detected in any of the borings. No samples were collected from within the fill material (Allwest 2003).

#### **April 2004 EPA Criminal Investigation Division Complaint Report**


In April 2004, EPA generated a report documenting a complaint received on (b) (7)(C), (b) (7)(D), (b) (6) by their Criminal Investigation Division (CID) (b) (6), (b) (7)(C), (b) (7)(D) (b) (6), (b) (7)(C), (b) (7)(D)



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(b) (6), (b) (7)(C), (b) (7)(D)



**March 2008 Geotechnical Evaluation**

In March 2008, Allwest completed additional subsurface exploration at the site to supplement the 2003 geotechnical engineering evaluation. Though a copy of this report is not available, it is briefly discussed in other site-related documents. As part of this work, nine exploratory trenches were excavated at the site to depths between 5 and 37 feet bgs (Figure 4). The types of fill material encountered included sand, silt, gravel, concrete, and municipal waste/debris; native alluvium was observed below the fill in 7 of the 9 trenches (it is not known in which two trenches native alluvium was not observed). No soil samples were collected for laboratory analyses of potential contaminants (Allwest 2016).

**December 2012 Abbreviated Preliminary Assessment**

In December 2012, an Abbreviated Preliminary Assessment (APA) for the site was conducted by the Idaho Department of Environmental Quality (IDEQ). The purpose of the APA was to assess the site for potential releases of contaminants by airborne, surface water, or ground water pathways, as well as potential discharges of other deleterious materials, such as petroleum products. IDEQ visited the site on October 18, 2012, at which time no deleterious materials, petroleum products, or groundwater seepage were evident. Photographs included in the APA of a 2008 excavation at the site, show general debris, along with large tires, as well as possible wood, metal, and broken concrete/asphalt (IDEQ 2012).

IDEQ concluded that although no discharge to the surface occurs, discharge of contaminants from the fill material to the SVRP aquifer could not be easily confirmed or rejected. Also, IDEQ indicated that any assessment to establish impact to the SVRP aquifer would be more costly than simple removal of the waste by the responsible parties. The APA recommended that the site be referred to the IDEQ solid waste removal program and for that program to work with the City of Coeur d'Alene and/or Kootenai County to remove the waste (IDEQ 2012).

**July 2018 Property Investigation Report**

In July 2018, Maul Foster & Alongi, Inc. (MFA) completed an environmental investigation of the site on behalf of the Raymond Management Company and Coeur d'Alene Lodging Associates (CDALA) ahead of their plans to build a hotel at the site. The purpose of their investigation was to assess environmental conditions at the site and to support voluntary remediation measures during development of the property that meet the requirements of the IDEQ Voluntary Cleanup Program (VCP) (MFA 2018b).

As part of their investigation, MAF collected soil gas samples from four temporary boreholes (B-1 through B-4; Figure 4) advanced to approximately 8 feet bgs. Each sample was analyzed for



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VOCs and methane, as well as helium (for leak detection). Sample results were compared to soil gas screening criteria derived from the EPA's Vapor Intrusion Screening Level (VISL) Calculator using default exposure parameters; the most conservative risk levels were chosen for this evaluation of the potential for vapor intrusion into structures on the property.

Several VOCs were detected in each of the four borings. However, exceedances of VISLs were only observed in two (B-1 and B-3) of the four borings (Figure 5). Methane also was detected borings B-1 and B-3 at 2.4% and 11% respectively. Methane was not detected in either boring B-2 or B-4 (MFA 2018b).

### **September 2018 Groundwater Sampling**

In September 2018, MFA conducted groundwater sampling at the site at the request of IDEQ due to the presence of VOCs, particularly of vinyl chloride, in on-site soil gas samples.

On August 22 and 23, 2018, one boring (B-5) was advanced at the site to a depth of 182 feet bgs (Figure 4). Groundwater was encountered at 168 feet bgs. Soils encountered in the boring included approximately 15 feet of fill material, with waste/debris being noted from 7 to 15 feet bgs. Soils below 15 feet consisted of native sands and gravels. No soil samples were collected from the boring, though photoionization detector (PID) field screening readings indicated the presence of VOCs ranging from 6.4 parts per million (ppm) to 101.7 ppm from 7 to 15 feet bgs (the interval in which waste/debris was observed) to approximate 5 feet below the waste/debris into native material. A temporary 2-inch groundwater monitoring well was installed with a screened interval from 172 to 182 feet bgs. One groundwater sample (B-5-GW-08242018) and one duplicate sample (B-5-GW-08242018-Dup) were collected. Low levels of tetrachloroethylene (PCE) were detected in sample B-5-GW-08242018 at 0.964 micrograms per liter (ug/L) and in duplicate sample B-5-GW-08242018-Dup at 0.932 ug/L. Following sampling, the groundwater monitoring well was abandoned (MFA 2018a).

### **Data Gaps and Recommended Activities:**

Although previous investigations have provided some limited analytical data, several data gaps still exist for the GVD site. Existing data gaps and the recommended sampling and analytical strategy to be completed under this SI are discussed below. Figure 6 depicts proposed sample locations.

**Sub-Slab Soil Gas and Indoor Air Sampling:** The July 2018 investigation by MFA demonstrated that VOCs are present in the soil gas in areas where waste/debris has been observed in the subsurface, some at concentrations in excess of EPA screening criteria. The building located in the northeast portion of the site, and currently occupied by Firehouse Subs and Thomas Hammer Coffee Company was constructed in an area that was occupied by the former gravel pit, and as such, possibly constructed over waste/debris that may have been used as fill. The building constructed in the southwest portion of the site and currently occupied by the Cracker Barrel Restaurant appears to have been constructed at the edge of the former gravel pit. Because of these buildings' locations and the known presence of VOCs in soil gas, there is potential for vapor intrusion into these buildings; however, this pathway has not been assessed.

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To address this data gap and determine if there is a potential direct exposure threat to human health, it is recommended that sub-slab soil gas samples and indoor air samples be collected from the Firehouse Subs and Thomas Hammer Coffee Company building and the Cracker Barrel Restaurant building for VOCs analysis. The number of sub-slab soil gas samples and indoor air samples collected from each building would be determined by the actual square footage each building and/or the actual square footage of each occupied space if more than one business is within the same building. Additionally, one outdoor ambient air sample would be collected for VOCs analysis near each of the above buildings to demonstrate potential vapor intrusion into these buildings is indeed originating from the subsurface. Background ambient air, sub-slab soil gas samples, and indoor air samples for VOCs analysis would be collected from areas believed to not have been impacted by the site

**Soil Gas Survey:** If hazardous materials were buried within the former gravel pit, their locations are not known. Soil gas data collected by MFA in 2018 detected the presence of VOCs, several of which exceeded EPA screening criteria, possibly indicating the location of buried hazardous materials. However, these samples were collected over a small area of the site, leaving much of the site unassessed.

To fill this data gap and assist locating, determining the aerial extent, and identifying potential hot spots of subsurface soil contamination and/or potentially buried hazardous materials, it is recommended that a soil gas survey be conducted at the site. This data would be used in guiding the placement of costly borings and groundwater monitoring wells. This survey would consist of collecting up to 51 passive soil gas samples from two separate sample grids placed in undeveloped areas of the site. One of these sample grids would be placed in the northwest undeveloped area of the site and would be approximately 50 feet by 60 feet. The second sample grid would be placed in the southeast undeveloped area of the site and would have an approximate 50-foot spacing (Figure 6). All passive samplers would be placed from between 3 to 4 feet bgs. A total of 21 passive soil gas samples would be collected from the northwest sample grid and 30 from the southeast sample grid. Three additional samples would also be collected in the parking lot to the south and east of the building occupied by the Firehouse Subs and Thomas Hammer Coffee Company, and three samples will be collected on the northeast side of Apple Way, between it and the northeast boundary of the 1971 gravel pit boundary. These samples would assist in determining whether the buildings may have been constructed over waste/debris used to fill the former gravel pit.

Sampling from a grid will allow for better spatial coverage of the site and lessen the chance that areas of contamination are missed. Each passive sampler would be submitted for VOCs analysis. Data from each sample grid would be used to generate soil gas concentration maps that would assist in determining the extent of buried waste/debris and locating hot spots of subsurface contamination for follow on subsurface soil sampling.

One passive and one active background soil gas sample will also be collected from an off-site location not expected to have been influenced by the site. These samples would be analyzed

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for the same analytical suite as the samples discussed above. Proposed background sample locations are presented on Figure 6.

**Subsurface Soil Sampling:** As discussed, the extent of buried waste/debris was somewhat defined by previous investigations completed by Allwest in 2003 and 2008, as well as MFA in 2018. However, these investigations only looked at a small portion of the area in which the former gravel pit was located based on aerial photographs and did not include northeastern or northwestern portions of the site where the former pit was located. The 2008 investigation included much of the southeast portion of the site, but as mentioned, the report documenting this investigation is not available, thus it is not known to what extent (type and depth) waste/debris was observed during this investigation. For these reasons, both the lateral and vertical extent of the waste is not known and represents a data gap for the site.

To address this data gap, it is recommended that up to five borings (including four target borings and one background boring) be drilled at the site in order to allow for geologic logging to determine the depth of the top and the bottom of the waste/debris in effort to calculate a volume of waste/debris, and to collect subsurface soil samples. Placement of these borings would be based on the results of the passive and active soil gas sampling to increase the likelihood that the borings will be located on, or near areas of actual contamination. If a passive soil gas survey is not preformed, these borings will be placed as depicted on Figure 6 in areas of the site that have not been previously investigated, or that have been investigated, but the investigation results are not available. A proposed background boring location is also depicted on Figure 6.

Up to three subsurface soil samples would be collected from each boring as follows: one above the waste/debris to characterize fill material placed on top of the waste/debris, one from within the waste/debris to characterize it, and one from native alluvium beneath the waste/debris to determine whether hazardous contaminants are migrating to deeper soils. Samples from the background boring will be collected from similar depths as the samples collected from the target borings. Sample collection would be guided using a PID/flame ionization detector. Each sample would be submitted for laboratory analysis of target analyte list (TAL) metals, diesel range total petroleum hydrocarbons (TPHs), gasoline range TPHs, PCBs, pesticides, SVOCs including PAHs, and VOCs.

**Groundwater Sampling:** One groundwater sample has been collected at the site and contained low levels of PCE. However, this sample was collected somewhat cross-gradient of the soil gas samples locations that contained exceedances of EPA soil gas screening criteria.

To address data gaps related to groundwater contamination at the site, one groundwater monitoring well be installed to facilitate groundwater sampling and future groundwater monitoring. This groundwater monitoring well would be placed near the center of the oldest portion of the former gravel pit (Figure 6). During drilling the boring will be geologically logged to determine the presence of fine grained silt/clay layers that may serve locally as aquitards, providing a barrier/separation between the waste/debris and groundwater. It is proposed that three subsurface soil samples be collected from the monitoring well boring, using



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the same sampling scheme that will be used for soil borings; in addition to one groundwater sample.

Additionally, up to four groundwater samples will be collected from existing groundwater monitoring wells and/or drinking water wells in the vicinity of the site having screened intervals in the same aquifer as the monitoring well that will be installed during the SI field event. At least one of these wells will be collected from an area believed to be upgradient of the site to establish background conditions.

All soil and groundwater samples will be submitted for laboratory analysis of TAL metals, diesel range TPHs, gasoline range TPHs, PCBs, pesticides, SVOCs including PAHs, and VOCs.

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## FIGURES